

PART II

SECTION

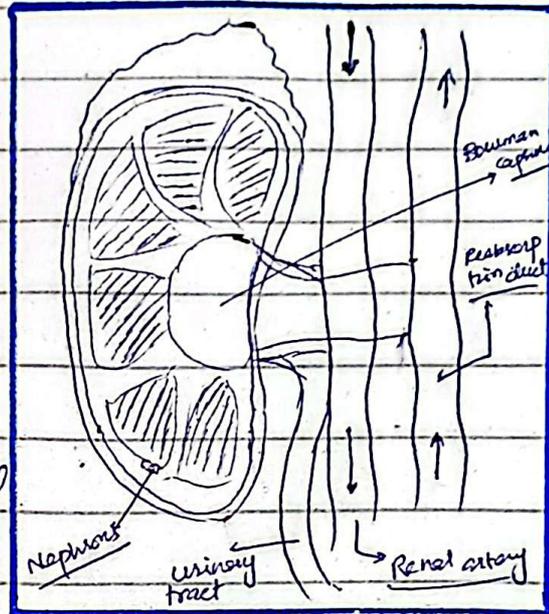
I

QNO 2

(a)

Explanation of working of kidneys

Human kidneys are very significant organ of human body with the primary function of filtering waste materials from body, excessive substances and regulating essential substances of the body.



→ Blood enters

Kidneys through renal artery and passes through millions of tiny filtering units called Nephrons which is also a basic unit of kidney. It differentiates among blood, water, urea and glucose.

→ Bowman's capsule filters waste like urea and excess ions while preserving glucose, blood, electrolytes and reabsorb them into blood stream.

→ Wastes, particularly ions and urea enter into urinary tract called urine.

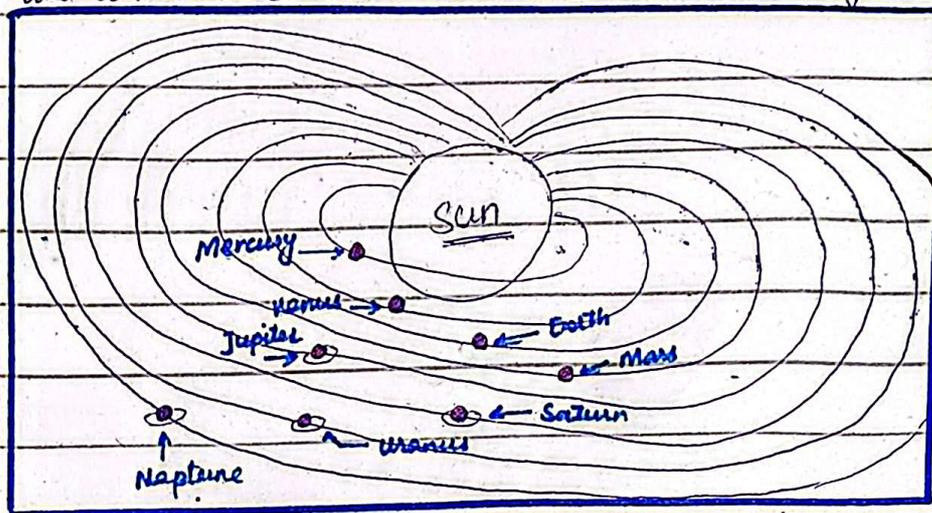
→ • Urinary tract pushes that waste into renal pelvis then ureters and finally into urinary bladder which is connected with genitals which help in excretion out of body.

→ • Healthy kidneys are essential for life. Their damage can be life threatening.

(b)

Explanation of solar system and its components

The solar system is a vast system in space (universe) consists of the Sun (as the central point) and other celestial bodies including planets, asteroids, meteoroids, dwarf planets and comets. It came into existence some 4.7 million years



ago after the collapse of solar nebula.

1) Sun:- Sun is the main component of the solar system and the primary source of energy with 99% of total mass of solar system. It consists of Hydrogen and Helium.

performance and handling deficiencies of chronic illnesses are the primary functions of balanced diet.

Carbohydrates

Primary source of energy that gives ability of functioning to brain and muscles.

Protein

Growth of body, organs, maintenance of tissues and skin are primary functions of proteins.

FATS

Fats are the concentrated energy that absorb the fat-soluble vitamins to protect organs, muscles and temperature.

Vitamin

They regulate human body processes, boosts energy, proper growth of bone, skin, hair and healing.

Minerals

Nerve functioning, fluid blood, blood formations are some of the important functions of the minerals.

Fiber

Fiber is important for gut health, small and large intestine to smoothly out the solid wastes from body and to prevent constipation.

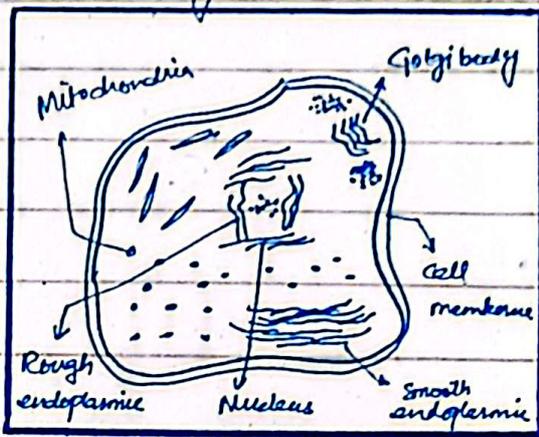
(d)

Differentiation of plant and animal cell

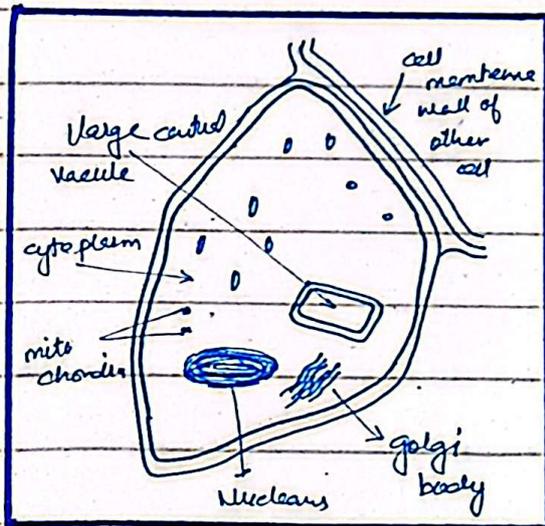
Cells are the building blocks of animal and plant life. They function as a basic unit of life in both plant and animal cells. Both plant and animal cells are Eukaryotic in nature having nucleus with complex nature.

Plant cells have cell wall that makes it rigid in shape and chloroplast for enabling it for photosynthesis while animal cell lacks both of them.

The primary difference between them is cell wall, presence of chloroplast, vacuole function, nutrition production and storage of energy.



Animal Cell



Plant cell

following chart aptly differentiate between plant and animal cells:

Features	Plant cells	animal cells
→ Cell wall	Present	absent
→ Shape	Fixed and shaped	irregular and unshaped

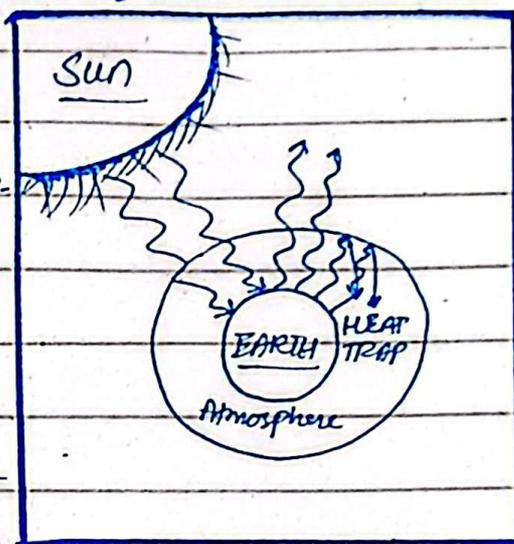
Feature	Plant cell	Animal cell
→ Chloroplast	Present for photo ^{Synthesis}	Absent / depends on ^{o₂}
→ Vacuoles	large central	Small temporary
→ mode of nutrition	make own food	depends upon others
→ Storage of energy	Starch	glycogen

QNO3

(a)

Explain the causes of global warming

• Global warming is the phenomenon in which the global temperatures are rising due to anthropogenic reasons. Usually, Sun heat is reflected back by the earth into the



Atmosphere but due to anthropogenic reasons the carbon heat trap is increasing and temperatures are rising.

Some of the reasons of the global warming are following:

1) Burning of fossil fuels

Use of coal, gas and oil for transportation, electricity production and industrialization increases the CO_2 in atmosphere and results in global

warming.

2) Deforestation

Cutting of trees for housing and agriculture cause global warming because the trees absorb the CO_2 from atmosphere. Less trees mean more CO_2 .

3) Industrialization

Industries emits toxic gases and green house gases into the atmosphere that cause CO_2 and is major source of global warming increase.

4) Use of Artificial gases

Refrigerants (CFCs) (Chlorofluorocarbons) and (HFCs) (Hydrochlorofluorocarbons) and AC gases are the most severe green house gases.

5) Transportation and population growth

Gasoline engines and their emission of carbon dioxide into atmosphere is causing GW. Similarly, increase in population increase transportation emissions cause global warming.

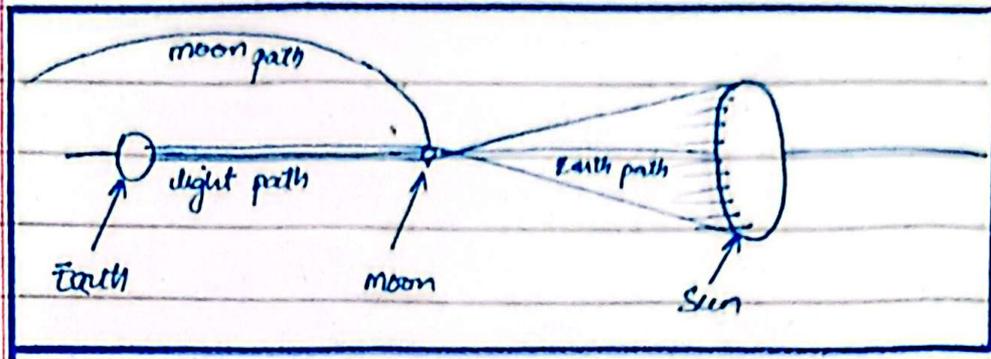
(b)

Explanation of the Solar and Lunar Eclipse

Solar and lunar eclipse are the natural phenomenon. In solar eclipse, the moon comes into opposite of Earth and blocks the Sun light path. Similarly, In lunar eclipse, the earth comes into

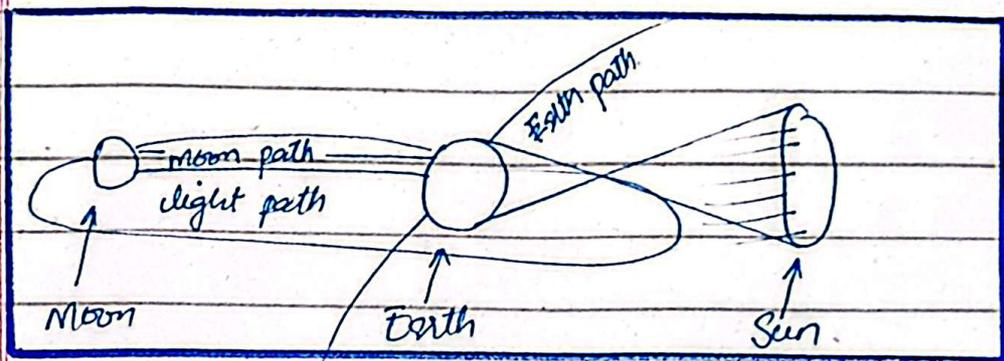
opposite of the earth and earth blocks the light path of Sun and moon.

i) Solar Eclipse



Solar eclipse is the physical phenomenon in which moon comes in between the light path of Sun and Earth that result in daytime darkness on earth. It can be total and partial in nature on different regions of the world (Earth)

ii) Lunar Eclipse



Lunar eclipse is the physical phenomenon in which earth comes in between the light path of Sun and moon that result in darkness or shadows of moon seen from earth. It also can be total and partial in nature on different regions of the world. (Earth)

(C)

Brief explanation of Tsunamis and Cyclones

i) Tsunami

Tsunami is the series of extreme ocean waves cause by the disturbance of underwater earthquakes, landsliding and volcanic eruption. It can cause urban floodings of coastal cities and damage infrastructure, material and lives. cost.

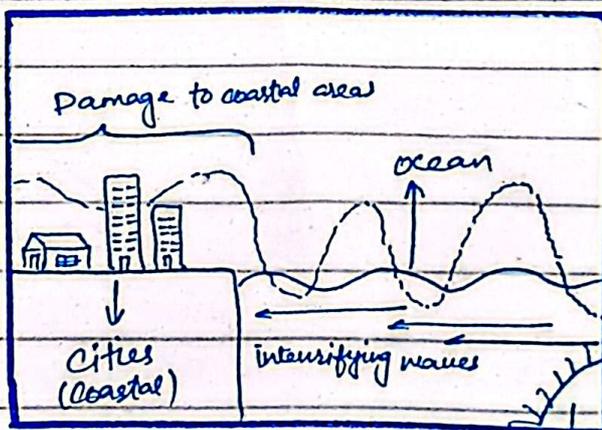
Causes of Tsunami

- The most common cause of tsunami is underwater Earthquake that disrupts the sea floor.
- Volcanic eruption underwater also cause the tsunami and damages coastal areas.
- Landsliding underwater that disturbs the water shores.

It can increase the waves power and size upto 40-50 feet above.

Characteristics of Tsunami

- Very powerful and Powerful long waves
- Extreme destruction of coastal areas
- Massive flooding and destruction
- Loss of lives and property.
- Ecosystems disturbance on land and sea.



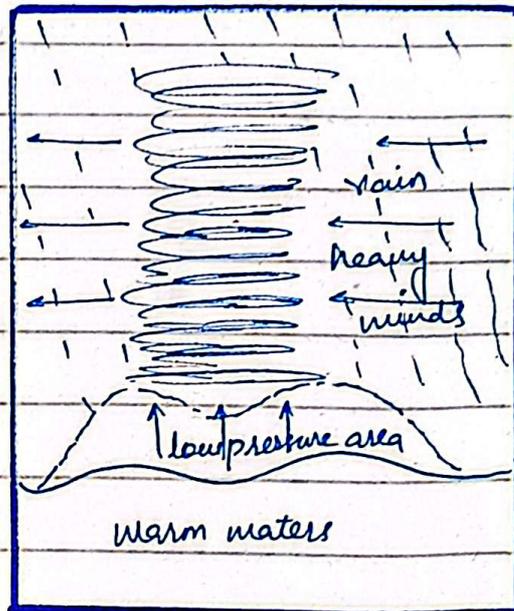
Disturbance due to earthquake, land sliding, volcanic activity

ii) Cyclones

Cyclone is a violent and extreme storm that forms over warm oceans due to low pressure areas in tropical regions. At Atlantic and Pacific, it is called as hurricane and typhoon respectively.

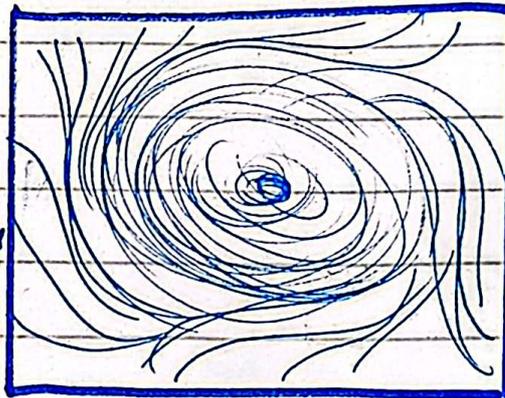
Causes of cyclone

- Warm sea surface temperature
- Low air pressure system
- High humidity and unstable atmosphere



Characteristics of cyclones

- Strong circular winds
- Heavy rainfall and thunderstorm
- Storm surges along coastlines



Bottom of cyclone

- flooding due to heavy rains
- damage to building and crops
- Power outage and loss of life and material

(d)

Description of food methods

Food preservation methods are techniques used to prevent the spoiling, extend life of food, and maintaining of quality of food by slowing the growth of microorganisms and enzyme activity.

Following are the methods of preserving of food:

i) Refrigeration of food

Food is stored at low temperatures upto (0-4°C) to slow the bacterial growth that spoil ~~water~~ food.
Cooked foods, milk, vegetables and fruits

ii) Freezing of food (dehydration)

Removal of moisture from food prevents the growth of the bacterial growth by freezing
Meat, fish, frozen items

iii) Salting of food

Salt removes water from food and inhibits bacterial growth.

Pickled meat, salted meat and fish (old procedure)

iv) Sugaring of food

High concentration of sugar prevents microbial growth by reducing moisture.

Jams, jellies, marmalades.

v) Canning of food

Food is sealed in airtight jars and heated to kill germs. Air (oxygen) is medium required

For the growth of bacteria.

Canned vegetables, fruits, meat, chicken, fish

QNO 16

(a)

Investment ratio given is $= 3:2 \Rightarrow \frac{3}{2}$

Total parts 5% is gone to charity

95% remaining

$$\frac{3}{5} \times 95\% \text{ of total profit}$$

$$\frac{3}{5} \times 95\% \times P = 8550 \text{ (Zahid share)}$$

$$0.57P = 8550$$

$$P = \frac{8550}{0.57} = 15000$$

(b)

Given 20% of $a = b$

$$\frac{20}{100} \times a = b$$

$$0.2a = b$$

Now find $b\%$ of 20

$$\frac{b}{100} \times 20 \Rightarrow \frac{0.2a}{100} \times 20 = \frac{4a}{100} = 0.04a$$

$$\frac{0.04a}{a} \times 100 = 4$$

(c)

Let the numbers be

$2x$ and $3x$

$$\text{HCF} = x$$

$$\text{LCM} = 6x$$

According to question

$$\text{LCM} \times \text{HCF} = 294$$

$$6x \cdot x = 294$$

$$6x^2 = 294$$

$$x^2 = \frac{294}{6} = 49$$

$$\sqrt{x^2} = \sqrt{49} \Rightarrow x = 7$$

$$2x = 2 \cdot 7$$

$$2(7) = 14$$

$$3x = 3 \cdot 7$$

(d)